Patenas in Ceylon

I REGRET that through an accident I was able only yesterday to read Mr. Heelis's reply to my letter on the subject of patenas in Ceylon. I have not a copy of my own letter by me and therefore cannot speak with certainty, but I believe that I only suggested that the cropping out of the thick band of quartzite amongst the gneiss was sufficient to explain the existence of many of the larger patenas in the Kandyan Province. The immense majority of the smaller and more isolated patenas I am fully aware cannnot be explained on my supposition, nor can they at present be explained on *any* reasonable supposition. I do not think, however, that even the most superficial observer can have any doubt as to the large patena mentioned in my letter between Pussellawa and Rambodde, covering several thousands of acres, being entirely due to the quartzite band that lies above it. In regard to the Dimbula patenas it is no doubt true that gneiss is almost always found underlying the soil, but this does not prove that the patena soil is derived from the gneiss. The depth of the rock below the surface is against this view, especially when taken in connection with the fact that I was never able to trace in the case of patenas as I did in scores of cases of jungle land, in railway and road cuttings throughout the Kandyan Province, the gradual changes from the hard rock upwards to the surface, which show that the soil has been produced by the disintegration of the gneiss *in situ*. The denuding forces at work among these mountains are so excessive (according to an estimate made by myself at Pussellawa the denudation was no less than ten inches in thirty years on land cleared for coffee) that strata probably of many thousands of feet in thickness have been carried away to the low country and the sea. It is not, it seems to me, at all an improbable supposition that in Dimbula and Ouvah a band of quartzite has during this denudation been disintegrated, and that its remnants are found now in isolated places resting on the gneiss. The limestone mentioned by Mr. Heelis as occurring in the Ouvah patena district proves, I think, a point in my favour, for the same kind of limestone is more plentiful in the neighbourhood of the quartzite band between Pussellawa and Rambodde than in any other district with which I am acquainted, there being no less than five entirely isolated spots near these villages where it occurs. This limestone is highly crystalline and of the same age as the gneiss, for I have found it at the upper fall at Rambodde passing almost imperceptibly both above and below into the gneiss. It is here about 450 feet above the upper surface of the quartzite band, where it crops out in the lower fall. Its stratified character may be readily seen at Pussellawa by the bands of mica-fragments that run through it in almost horizontal directions. I have never heard of this limestone covering any extensive area except at Matalé, where there must be some hundreds of acres of it. In other localities that I have visited it covers only an acre or more frequently only a fraction of an acre. The soil produced by its disintegration is, I believe, the richest in the island, as is shown by the fact that the limestone after being burnt is frequently used as a manure for coffee trees, and that the jungle growing below such rocks is generally of the richest description. I can scarcely therefore think that any considerable area of patena soil in Ouvah is formed by the disintegration of limestone, although it is quite consistent with what occurs at Rambodde that limestone should be extensively found in the neighbourhood of a large patena. As to the quality of the soil on the Ouvah patenas the test generally applied by planters is that of the power of the coffee tree to produce fruit. This is manifestly not a perfect test. Climate counts for a great deal, and the climate of Ouvah is recognised as the most favourable in Ceylon for the production of coffee, whilst that of Dimbula is acknowledged to be too humid for the perfect fruiting of the plant. I remember a pertinent remark made to me by a successful planter in regard to the relative values of soil and climate in the growing of coffee. "Give me the climate and I can make the soil." It is an exaggeration, but there is sufficient truth in it to illustrate well the point I am urging.

Finally in regard to abandoned clearings falling back not into "chena" and jungle but into patena land, I must confess I never met with an instance of it, and with Mr. Heelis' permission I would suggest that the Dimbula cricket ground is scarcely a case in point. It is probably the interest of the owner to keep it in grass and to prevent seeds accidentally carried to it from taking root. But supposing it were surrounded by forest and left to itself for twenty years, would it at the end of that period be still in grass, or would it have returned to "chena"? If it were genuine patena land, it would remain so, for plants accidentally imported into it would find no nourishment, but if it were impoverished jungle soil, I am inclined to the opinion that there would still be sufficient unextracted nourishment to enable at least the hardier species to grow in a stunted form until humus was deposited, when forest would succeed. Whilst differing from Mr. Heelis on the several points of his letter I cannot omit to thank him for the courtesy with which he has expressed his opinions.

R. ABBAY

Ouseburn, May 10

The Greenland Seal Fishery

ANOTHER year has passed and no steps have been taken to put some restriction upon the cruel and wasteful manner in which the seal fishery is prosecuted. Warning after warning has been given, and still nothing has been done. In 1868 Dr. Brown wrote (*Proc.* Zool. Soc., p. 440): "Supposing the sealing prosecuted with the same vigour as at present, I have little hesitation in stating my opinion that, before thirty years shall have passed away the seal-fishery, as a source of commercial revenue, will have come to a close." This season the Dundee vessels have been turning their attention to the Newfoundland seals, for, says a paragraph in the *Daily News*, "Capt. Adams has for some years been of opinion that that ground [the Greenland seal-fishery] is practically used up, and hence his visit to Newfoundland." The small success of the Greenland sealers this season fully corroborates Capt. Adams's opinion, and forms a practical comment upon Dr. Brown's prediction!

From the same source (*Daily News*) I learn that "advices of a very gratifying character have been received from Newfoundland. The *Panther* has taken 20,000 seals, the *Neptune* 30,000, the *Arctic* 24,000, the *Aurora* 15,000, and high expectations have been formed regarding the success of the whole fleet. These four vessels have secured 89,000 seals; Capt. Gray says 20 per cent. may be added to the number of seals actually taken for those mortally wounded and lost, and that as these are breeding seals each old one will leave a young one to die of starvation. (See letter in *Land and Water*, May 9, 1874.) The result will be that these four vessels destroyed 213,000 seals! Similarly "gratifying" advices have been received from the other vessels of the fleet.

If the Royal Society for Prevention of Cruelty to Animals and the anti-vivisection advocates really wish to do service in the cause of humanity, let them reprint Capt. Gray's letter and distribute it broadcast, nor let them cease their efforts till a proper close time is obtained for these persecuted animals. Apart from all questions of humanity, common prudence would dictate that so rich a source of revenue, which, if properly cared for, may last an indefinite period, should be secured from the rapacity of those who will otherwise soon bring about its extinction. Now is the time for considering the steps which should be taken to bring the matter before the Governments concerned; if left till later in the year hasty legislation will probably, as in the last attempt, end in failure.

Norwich THOMAS SOUTHWELL

A New Lecture Experiment for Proving the Compound Nature of White Light

THE old method of showing the compound nature of light by the composition of artificial colours on the lecture-table, is to arrange the various colours in the proper proportion on a disc and to revolve this disc rapidly; but a pure white cannot be produced by this method since there is necessarily a partial absorption of rays on every part of the disc.

My method is to arrange seven lanterns, in the first place, so as to project their several circles of light side by side on a white screen, then to colour each circle by introducing slides of glass stained to imitate the seven colours of the spectrum (the proper intensity of colour being found by trial); we thus get seven circles on the screen coloured from red to violet and arranged side by side. Then by turning the several lanterns so that the projected circles shall exactly overlap each other we get one circle of white light, proving that the seven colours together make white light.

The same effect can be produced with five colours only if properly selected; and even two, the ordinary cobalt blue and deep

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orange, will nearly do. If these two last be made to partially overlap the effect is very striking. WM. TERRILL

Swansea, May 6

The Araucaria

IN your first number for March last you express your surprise that we should still be ignorant regarding some important phases of salmon life; but there is a question relating to facts much more within the sphere of our daily observation on which authorities differ as much. Does the common Araucaria (*A. imbricata*) require one year or two for the growth of a shoot on the main stem, estimating a shoot as the growth between two whorls of branches? Every gardener whom I have consulted on the subject in Scotland, from north to south, says positively that it requires two years, while the few of whom I have had any opportunity of inquiring in the south of England, decide equally positively in favour of one year. Prof. Balfour agrees with the former in as far as Scotland is concerned, while a gentleman residing on the border between the two countries, informs me that some of his have grown at the rate of a shoot in two years, others of a shoot annually, while a few show only a shoot for every year and a half since they were planted. It has been suggested to me that the difference, if it really exist, may be due to the more favourable climate of England; but araucarias may be seen growing as freely and as healthily in Ross-shire as in Kew Gardens. It would be satisfactory to have more general information on the subject from England and from the Continent of Europe, and still better to have it from the native countries of the tree.

There is another question equally important regarding it, namely, when the shoots are biennial, as they undoubtedly are in many cases, is there a timber ring in the stem for every year's growth, or one for every whorl of branches? On that point also the evidence is contradictory.

JAMES ELLIOT

The Hibernation of Swallows

IN connection with the Duke of Argyll's letter on this subject (NATURE, vol. xv. p. 527) there is an interesting communication in the *Ornithologisches Centralblatt* of May 1 from Herr J. Rohweder, under the head of "Ornithological Notes from Schleswig-Holstein." Herr Rohweder certifies to the competency and trustworthiness of the observer who communicated the facts to him. After the house-swallows (*Hirundo urbica*) in the autumn of 1870, from the beginning to the middle of September, had held their usual assemblies by hundreds on the sunny side of the roofs, stormy and rainy cold weather suddenly supervened. As suddenly did most of the swallows take their departure for the south. The few that remained behind flew about restlessly and anxiously, unable in the cold north wind to obtain sufficient insects to appease their hunger. Within a day after the others these also disappeared. Three days after, during which time no swallow was observed, Herr Rohweder's informant saw peeping out of the entrance of some nests under the projecting roof of the east side of his house, here a wing, there a tail or a few feathers. A ladder was obtained and the nests tapped, but no motion. On pulling at one of the overhanging wings a swallow was dragged out. It was alive, but seemed paralysed. After the swallow was held in the hand a while it fluttered about a short space and then fell to the earth. A second bird behaved in the same way, and a third showed few signs of life. A fourth appeared quite lifeless. In other nests six, and ten, and even fourteen swallows were found huddled together. Their condition was similar to those first found. The birds near the entrance of the nest appeared in a state of sound sleep, while those furthe in showed no signs of life. The former soon were able to fly, with difficulty, a larger or shorter round, only one flying to a considerable distance; the latter were thrown on a neighbouring heap of straw. On the following day, when the observer returned, no birds were found. The exact locality of these observations is not given. X.

Two Remarkable Meteors

WHILST walking on Sunday night with a friend, about 10·35 my attention was directed to a beautiful meteor, of a ruddy hue, not unlike Mars. It appeared a little to the south of Arcturus, and after passing along with a slow motion in an easterly direction, throwing out sparks meanwhile, disappeared near β Herculis. In size it seemed to be about four times as large as Jupiter, and continued visible for three or four seconds. About half a minute afterwards it was followed by another from the same quarter, which took almost exactly the same direction as the other. In colour and appearance it resembled the first, but was not quite so large. It remained visible about three seconds. The sky at the time was beautifully clear, and there was little or no wind.

Rottingdean, Brighton, May 14 W. H. S. J. HOPE

Yellow Crocuses

(Translation)

I have observed here that sparrows have shown a very considerable partiality for yellow crocuses during this spring. My neighbour and I vied with each other in our spring beds; he excelled in yellow crocuses and hyacinths, I in white and blue crocuses. One beautiful Sunday the whole of his crocuses were found bitten and torn by sparrows, and, what is noteworthy, also some yellow crocuses which had somehow wandered into my lot, while the blue and white remained almost untouched. Should this be regarded as an oversight, or was it a matter of taste?

So far the fact is incontestable, but it has not before been observed by me, though I am an old amateur. To be sure, for the last six years, I have always been, about the time of blooming, absent at the Reichstag, and perhaps, therefore, have forgotten early single observations. It may not be possible to obtain a positive explanation. The dryness of the spring, perhaps the colour-sense of the bird, or even a more or less delicate mixture of the plant-sap may account for it—quien sabe!

Hamburg, May 12 W. VON FREEDEN
Editor of the *Hansa*

Sound and Light

I SHOULD like to learn if the following phenomenon is well known and alluded to in scientific writings. While lying awake a few mornings ago, with my eyelids closed, I was startled by a railway whistle. At the same instant I perceived a blaze of light on a dark ground seemingly a few yards off. I made inquiry of my wife (who is of a much more nervous temperament than I) if she had ever observed such a coincidence, and was informed that in her case it is not a very unfrequent occurrence. I likewise reported the circumstance to some scientific friends, but they had neither read nor heard of noise being the occasioning cause of sensation of colour.

While the pen is in my hand I may mention, in reference to Mr. Renshaw's communication (p. 530), that sparrows are in the habit of demolishing the flowers of my yellow crocuses.

Bushy Hill, Cambuslang HENRY MUIRHEAD

Cloud Colours

A VEIN of thought is sometimes as a vein of the most fine gold, and observation is everything in meteorology as it is in geology, in which two difficult sciences we are much interested in this country, and of which your contributor is the unpretending student.

Now I first learned my lessons in weather science from the remarks of Admiral Fitzroy, the author of the Weather Book, which should be well known and read in this country. For years we have marked what an intimate correlation there is between the colour of the clouds and coming weather. Thus we have the cold dark blue and grey, and the reddish yellow masses of cloud as indicative of cold and snow, and we have the light bright grey with bright edges as accompanying or indicating hard frost. Then again we have the inky-coloured cloud, flying in shreds, as indicative of wind and rain, and also the mottled cloud of the same colour or thereabouts, as the sure indicative of rain. We have the sickly-looking green, the deep blue gloom, the muddy angry-looking red, and other such tints, as forecasts of storm, snow, rain, &c.; and frequently before a north-easter we have the grey bluish and whitish clouds setting from north-east, somewhat like the spread-out fingers of the hand. Our sunsets are often grand beyond my pen. The lavish wealth of crimson and gold is magnificent. It strikes us now to ask what relation chemistry and gases have with the cloud colours. I leave that

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